

CLAIMS

Sub a7
 1. A hydrogen refinement apparatus comprising a reformed gas feeding part for feeding a reformed gas containing at least a hydrogen gas and water vapor, and a reaction chamber equipped with a carbon monoxide shifting catalyst body positioned downstream from said reformed gas feeding part,

wherein said carbon monoxide shifting catalyst body comprising a carrier composed of at least one metal oxide having a BET specific surface area of $10 \text{ m}^2/\text{g}$ or more and Pt supported thereon.

Sub B1
 2. The hydrogen refinement apparatus in accordance with claim 1, wherein the BET specific surface area of said carrier is $250 \text{ m}^2/\text{g}$ or less.

Sub B1
 3. The hydrogen refinement apparatus in accordance with claim 1, wherein said metal oxide is at least one oxide of one selected from the group consisting of Mg, Al, Si, Ca, Ti, Cr, Fe, Zn, Y, Zr, Nb, Mo, Sn, Ba and lanthanoid.

4. The hydrogen refinement apparatus in accordance with claim 1, wherein said metal oxide contains Ce.

Sub B1
 5. The hydrogen refinement apparatus in accordance with claim 4, wherein said metal oxide contains Zn.

Sub a8
 6. The hydrogen refinement apparatus in accordance

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Sub

with claim 1, wherein said carbon monoxide shifting catalyst body comprises a carrier supporting Pd, Rh or Ru in an amount of 0.1 to 0.5% by weight based on Pt, in addition to Pt.

7. A method for operating a hydrogen refinement apparatus comprising a reformed gas feeding part for feeding a reformed gas containing at least a hydrogen gas and water vapor and a reaction chamber equipped with a carbon monoxide shifting catalyst body positioned downstream from said reformed gas feeding part; said carbon monoxide shifting catalyst body comprising a carrier composed of at least one metal oxide having a BET specific surface area of $10 \text{ m}^2/\text{g}$ or more and Pt supported thereon,

comprising the step of controlling the temperature of said carbon monoxide shifting catalyst body from 150 to 450°C .

8. The method for operating a hydrogen refinement apparatus in accordance with claim 7, further comprising the step of controlling the temperature of the upstream side part of said carbon monoxide shifting catalyst body to more than the temperature of the downstream side part thereof.

9. The method for operating a hydrogen refinement apparatus in accordance with claim 7, wherein said

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reformed gas containing 24 to 50% by volume of water vapor is fed.

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